

Effectiveness of massage therapy on the mood of patients after open-heart surgery

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ABSTRACT

Background: Cardiovascular diseases have the highest death rates in human society. Coronary artery disease is among the most important of these diseases. No treatment of cardiovascular disease has as much impact on the quality of life of the patients as the heart surgery. The recovery from heart surgery is associated with symptoms of pain and psychological distress. In the early recovery period, the patients will face moderate symptoms of anxiety and depression. In this regard, various measures of nursing, as complementary therapy practices have been performed to help the patients for overcoming the physical and psychological needs. One of these methods, in recent years has been the use of complementary and alternative therapies, particularly massage therapy, after heart surgery. Thus, the aim of this study was to determine the effectiveness of massage therapy on the mood of patients after open-heart surgery in Isfahan Chamran Hospital during 2010-11.

Materials and Methods: In this study 72 patients, who underwent coronary artery bypass surgery, were selected. They were randomly assigned to the two case and control groups. The patients of the case group (n = 36) received Swedish massage for 20 minutes in 4 sessions in 4 consecutive days, 3 to 6 days after the open-heart surgery. The patients in the control group received only the routine care. The mood questionnaire (POMS) which was used in this study has been completed the day before the start of the study and intervention and again after the last day of the intervention. SPSS software version 12 and descriptive and inferential statistical methods were used for data analysis.

Findings: The comparison of study results showed that massage decreased the overall rating of the patients' mood after the surgery.

Conclusions: The use of massage therapy as an effective nursing intervention can improve the patients' mood after open-heart surgery. Due to the low cost and simplicity of this method, it can perhaps be used as a complement to drug therapy and postoperative interventions used in these patients.

Key words: Massage, mood, heart surgery

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INTRODUCTION

Cardiovascular diseases have the highest death rates and will remain the primary cause of death in the world until 2020. Nearly 52 percent of deaths in the United States and 48 percent in Europe are related to these diseases.^[1]

A large number of patients with coronary artery diseases which do not respond to medical therapy, have to undergo coronary artery bypass graft surgery.^[2] This common procedure has been done in the medical world for about 35 years.^[3] The prevalence of coronary artery bypass graft surgery is 26.79% in North America, 0.72% in Asia, 17.94% in Western Europe and 18.14% in the rest of the world.^[4] In Iran, 60% of total open-heart surgeries are coronary artery bypass surgeries.^[5]

One of the most important aspects of the recovery period after bypass surgery is the patient's mental state, which has an indispensable role in the other aspects of social functioning and resumption of work and

activities.^[6] In the early period of recovery, the patients are faced with moderate symptoms of anxiety and depression.^[7-9] In addition, these patients can be faced with fatigue, sleep disorders and mood changes such as stress, fear, confusion, agitation, irritability, fear and anger (due to feelings of worthlessness, lack of control and self-esteem).^[10]

The patient undergoing open-heart surgery suffers from mood swings and anxiety for many different reasons. Among these reasons, severe chest pain and fatigue, which cause anxiety and distress in the patient, can be noted. Fear of death, disability, the continuation of the symptoms despite treatment, and lack of preparation of the patient prior to surgery may increase these problems.^[11] On the other hand, the heart is one of the body's organs, which reacts easily and naturally to a variety of mental states.^[12] Anxiety and apprehension will cause an increase in the activity of the sympathetic nervous system. This will in turn increase the heart rate and ventricular pressure. The heart's requirement of oxygen will be increased and this can exacerbate the patients cardiovascular symptoms.^[13]

Although, today pharmacologic agents are used in order to reduce implications such as stress and anxiety in heart patients, these methods can have some side effects.^[14] Thus, comprehensive attention to the needs of patients (including their psychological needs) has particular importance for the nurses as the first people associated with the patient's symptoms and needs.^[15] In this regard, various nursing interventions as complementary therapy practices help meet the physical and psychological needs of patients. One nursing intervention is and using complementary therapies after heart surgery.^[16]

One of the most popular forms of complementary medicine is massage therapy which is in third place among the complementary therapies in terms of the prevalence of use by patients.^[9] Massage is the most common of the CAM therapies in nursing. It is easy, safe, non-invasive, and relatively cheap.^[17]

The conducted studies on massage and the patients' mood showed different and sometimes contradictory results. Some studies suggested that massaging was effective on anxiety, depression and stress of the patients after open-heart surgery.^[18-20] However, some studies indicated that massage made no changes in these variables.^[9] In these studies the effect of only one or two sessions of massage therapy was investigated on the mood. As in many of these studies, doing this research with more massage sessions has been proposed. Hence,

the aim of this study was to determine the effects of massage therapy on the mood of patients after open-heart surgery in Isfahan Chamran Hospital during 2010-11.

MATERIALS AND METHODS

The present study was a randomized single-blind clinical trial. The questionnaire was completed by a fellow researcher who was not informed of the patients' group. The study was performed in the period of December 2010 to May 2011 in Isfahan Chamran Hospital. It was conducted on two groups of patients undergoing coronary artery bypass surgery with the inclusion criteria. From these patients (165 patients), 72 patients were selected according to other studies^[9,18] and the professors' point of views. The current study's inclusion criteria included: study participation, full consciousness, age of 18-75 years, no usage of various methods of complementary medicine over the previous quarter, the absence of severe neuropathy in a patient, time of connection to the pump of less than 4 hours, intact areas of massaging and permission from the patient's physician.

The sampling method was easy to approach. After receiving the written consents, they were randomly divided into case and control groups. Thus, the questionnaires were numbered from one to 72 and were placed inside an envelope. While sampling, a questionnaire was randomly chosen from within the envelope. If the number was odd, the patient was placed in the control group and if it was an even number, in the case group.

The researcher made the patient and the patient's environment ready before the massage intervention. The patient demographic questionnaire and the profile of the mood states that contained 65 items were conducted and completed by a colleague. This study was performed using the techniques of Swedish massage stroke level for 20 minutes with soothing baby oil on the legs (quadriceps muscles and legs), hands (palms up to the end of the shoulder) and back (the first vertebra of the spine to the spine, the lumbar area of the shoulders). It was conducted for four sessions in 4 consecutive days, 3 to 6 days after the open-heart surgery and during the hours of 10 am to 2 pm. The above steps were repeated for four consecutive days for each subject. Then after the massaging intervention on the fourth day, the questionnaire (POMS) was completed by a fellow researcher.

The patients in the control group had all of the conditions of the case group, without any intervention. They received only the routine care. This care included

the use of 1 tablet of 325 mg acetaminophen per day if necessary, or 400 mg ibuprofen and 10 mg tablets of Oxazepam per day. The POMS questionnaire on the first day and the last day of the intervention was completed.

The questionnaire (POMS), which is a standard questionnaire and its validity and reliability have been determined in various studies including the research of Brezden et al.^[21], Iwamitsu et al.^[22] and Albert et al.^[9] The reliability of this questionnaire in nursing was studied by calculating the Cronbach's alpha by Tirgari et al.^[23] and also Fazel et al.^[20] by conducting the study on 20 patients. Moreover, the POMS questionnaire in both studies was confirmed with $\alpha=0.81$. The researcher used the content validity method to determine its validity. The questionnaire, once again, was completed, to determine its reliability, in the last day of hospitalization after the surgery. The Pearson correlation test was calculated and the results were as follows: 0.97 for anxiety, 0.91 for depression, 0.95 for anger, 0.95 for the ability, 0.98 for fatigue and 0.98 for confusion.

The questionnaire included 65 items in the following six groups: anxiety, depression, fatigue, confusion, anger, and ability. The questionnaire included: 9 cases of anxiety, 15 cases of depression, 12 cases of anger, 8 cases of the ability, 7 cases of fatigue and 7 cases of confusion. Seven other cases were used for displaying and enrichment of the questionnaire. These cases were not calculated in scoring the questionnaire. Each item was accounted by using the Likert scale from the score of zero (never) to four (very much). Thus, the variable scores were as follows: 0-36 for the subgroup of anxiety, 0-60 for the depression subgroup, 0-48 for the subgroup of anger, 0-32 for the subgroup of the ability, 0-28 for the subgroup of fatigue

and 0-28 for the subgroup of confusion.

In order to calculate the total mood score, the score of the five negative factors (including anxiety, depression, anger, fatigue and confusion) were added together. The positive mood score (the ability) was deducted from the mentioned score. Thus, the total score was ranged between 0 and 168 and the lower scores indicate a better mood.^[24] The collected data in this study were quantities (discrete-continuous) and qualitative (nominal-graded). For statistical analysis, the SPSS software version 12 and descriptive and inferential statistical methods were used.

FINDINGS

Reviewing the obtained results of the two groups indicated that there was no significant difference in terms of demographic data between the two groups ($p > 0.05$). As can be observed, there was a significant difference between the mean overall rating mood and vital signs (before and after the intervention) in the case group ($p < 0.001$) (Table 1).

The results also showed that there is a significant difference in the mean overall mood ratings (before and after the intervention) in the control group ($p < 0.001$) (Table 2).

The results also showed that there is a significant difference between Changes in mood rating after the intervention in the case and control groups ($p < 0.001$) (Table 3).

DISCUSSION

The results of this study showed that massaging could

Table 1. Comparison of the mean rating of mood before and after the intervention in the case group

Mood	Group	Before intervention		After intervention		Paired t-test	
		Mean	SD	Mean	SD	P-value	T
Anxiety		28.1	5.6	11.4	4.2	< 0.001	26.2
Depression		44.2	10.8	16.7	7.2	< 0.001	22.8
Anger		23.8	15.0	8.6	7.8	< 0.001	11.3
Ability		12.5	3.6	28.6	1.1	< 0.001	28.8
Fatigue		21.5	4.9	8.9	4.2	< 0.001	12.7
Confusion		18.0	6.7	6.5	4.9	< 0.001	11.5
Total		123.1	27.3	23.1	19.1	< 0.001	27.1

Table 2. Comparison of mean rating of the mood before and after the intervention in the control group

Mood	Group	Before intervention		After intervention		Paired t-test	
		Mean	SD	Mean	SD	P-value	T
Anxiety		27.1	5.9	21.7	6.2	< 0.001	10.3
Depression		40.9	10.2	33.7	10.9	< 0.001	7.8
Anger		25.7	12.5	20.6	11.8	< 0.001	6.7
Ability		13.9	3.4	17.8	4.1	< 0.001	8.82
Fatigue		23.4	4.03	20.3	4.6	< 0.001	4.52
Confusion		15.5	7.4	13.0	7.1	< 0.001	4.35
Total		118.8	24.3	91.6	27.7	< 0.001	10.9

Table 3. Comparison of changes in mood ratings after the intervention in the case and control groups

Mood	Group	Before the intervention		After the intervention		Paired t-test	
		Mean	SD	Mean	SD	P-value	T
Anxiety		- 16.7	3.8	- 5.4	3.1	< 0.001	13.4
Depression		- 27.4	7.2	- 7.2	5.5	< 0.001	13.4
Anger		- 15.8	8.3	- 5.0	4.5	< 0.001	6.8
Ability		16.0	3.3	4.2	2.9	< 0.001	16.1
Fatigue		-12.7	3.4	- 3.0	0.5	< 0.001	10.2
Confusion		- 11.5	4	- 2.4	0.3	< 0.001	10.4
Total		- 100.3	13.7	- 27.3	14.9	< 0.001	15.6

improve the patients' mood after the coronary artery bypass surgery in the case group. The studies of Cutshall et al.^[18], and Hattan et al.^[19] also confirmed this fact. However, the results of Albert et al. showed that there was no significant difference between the mean scores of depression, anxiety, mood and pain in patients after the intervention and before the intervention. The author considered the reason of the difference to be due to the low number of massage therapy sessions.

The study has also found that there was a significant difference in the mean mood scores (before and after the interventions) in the control group. Bauer et al., Cutshall et al. and Hattan et al.' studies showed different results. Comparing the results of the present study with other mentioned studies can prove that the surgery patients are faced with more stress and anxiety at the time of admission. The patients' confidence has increased by the passing of time, the exit of chest tube, communication with family and other patients, gradually taking over former tasks, reducing the amount of pain and the improvement of sleep quality. On the other hand, the patients are faced with an overall improvement in mood by the increase in their life expectancy and reduction in their anxiety and stress levels. However, as can be seen in Table 3, the mean changes in mood scores (after the intervention) was higher in the case group than the control group.

According to the results of the present study, it can be stated that the use of massage therapy as an effective nursing intervention can improve the mood of patients after open-heart surgery. Given the low cost and simplicity of this method, it can be used as a supplement to drug therapy and postoperative interventions in these patients.

The ethical committee approved the study.

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